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WESTERN BIRDS

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WESTERN BIRDS

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NOTES ON THE BREEDING BIRDS OF ISLA RAZA, BAJA CALIFORNIA

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The ornithological significance and conservation importance of Isla Raza (28°49′N, 112°59′W) rests on the nesting of three Larids endemic to northwestern Mexico: the yellow-footed race of the Western Gull, the Heermann's Gull and the Elegant Tern. The Heermann's Gull colony is one of only eight known colonies (Anderson et al. 1976) and is easily the largest, containing perhaps over 90% of the species' nests (Orr 1970). The majority of the world's Elegant Terns are said to nest on Raza. A fourth Larid, the Royal Tern, also nests on the island. An Alcid endemic to northwestern Mexico, Craveri's Murrelet, may well still nest on Raza.

The ornithological literature on Raza is fragmentary and scattered. For early references see Grinnell (1928). Apparently the only major papers since then are those by Anon. (1967), Tobias (1968), Velazques-Nogueron (1969) and Barreto (1975). All four of these are in Spanish, however translations have been made–see Literature Cited.

This paper presents observations made from 1 to 20 May 1975, when we were resident on Isla Raza (Flat Island). The island lies about one-third of the way down the 1000 km long Gulf of California (Sea of Cortez) and about 20.3 km from the coast of Baja California. The long, comparatively narrow Gulf supports one of the most diverse and rich sub-tropical marine ecosystems in North America. Raza is one of a number of important sea bird islands in the Gulf; for a masterly synthesis see Anderson et al. (1976).

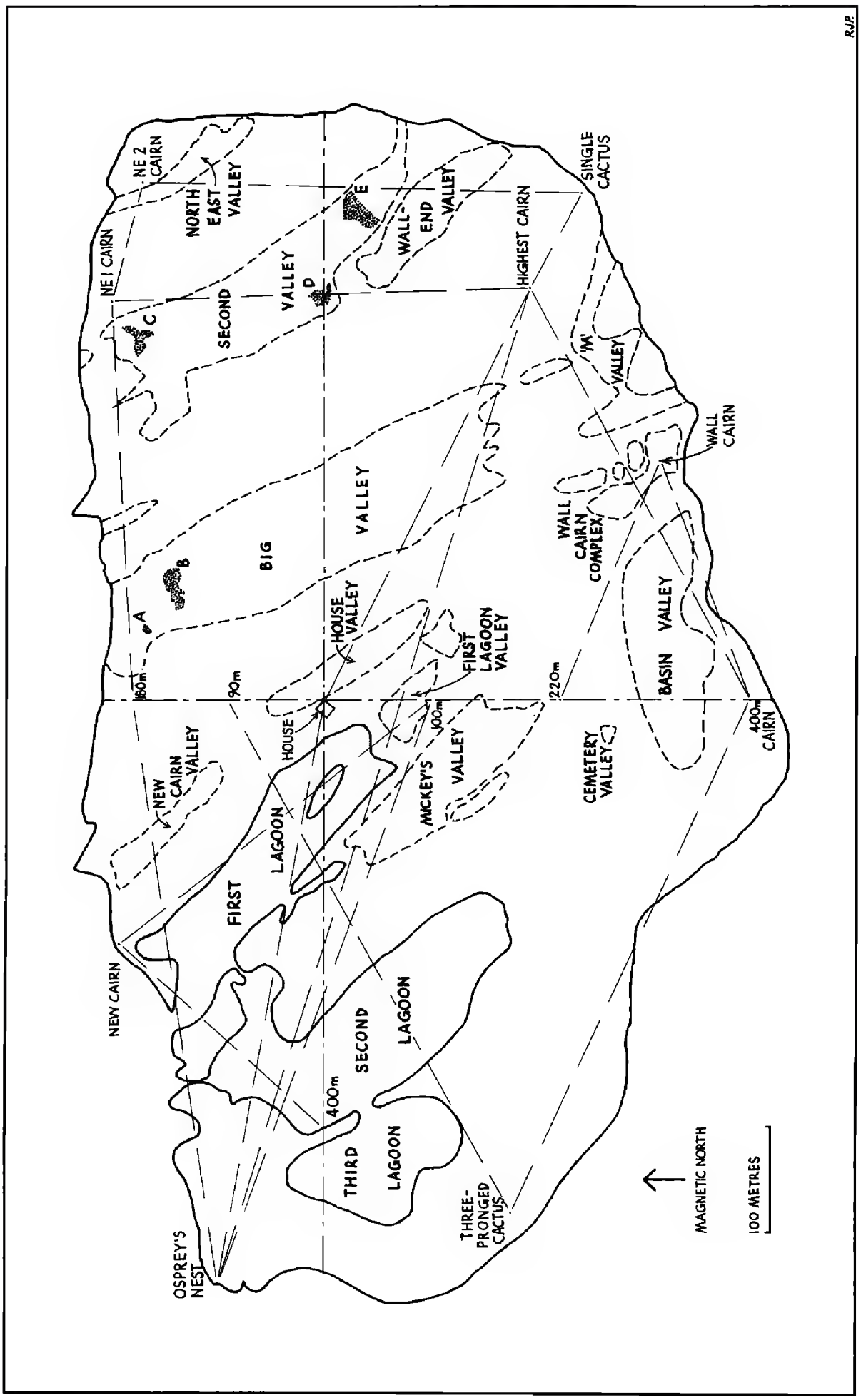

Figure 1. Isla Raza, Mexico. The extremity of the land represents the high water mark of ordinary spring tides. The flat areas are enclosed by dotted lines. The north-south and east-west base lines (dashes and dots) were used for surveying and censuses (see text). The other straight lines (long dashes) are sightings used in surveying. Stippled areas lettered A to E are the terneries. The house is not to scale. Drawn by Robin J. Prytherch from an original survey by the authors and Donaldo MacIver.

METHODS AND STUDY AREA

Having no detailed map of Raza, we made our own (Figure 1) using a compass, surveyor's tape and sighting poles. Prominent points were found by triangulation and subsequent details filled in by further measurements and by sketching from eye. The map given in Anon. (1967) and no doubt used by Barreto (1975) is apparently based on an oblique aerial photograph.

The area of Raza is about 53.8 ha including the three tidal lagoons which together cover 6.08 ha. The land surface is 47.72 ha, 35.97 ha being classified as "rocky" and 11.75 ha as "flat." The island's longest axis lying exactly east-west is 1.11 km; at its widest point (north-south) Raza is 0.65 km. These two axes are not the base lines shown on the map, but lie parallel to them. The island's highest point is about 30 m above mean sea level.

Geologically much of Raza appears to be volcanic in origin and may have been formed by a volcanic upwelling; see Brusca (1973). Climatologically, Raza lies in the Gulf Coast Desert (Jaeger 1957). At El Barril, about 60 km south on the coast of Baja California, the mean annual temperature is 23.5°C and the mean annual rainfall 90.2 mm (Instituto de Geografia 1970). The island has an impoverished terrestrial flora. Barreto (1975) mentions fifteen species. Among the more conspicuous or commoner plants are the Giant Cardon *(Pachycereus pringlei)*, two

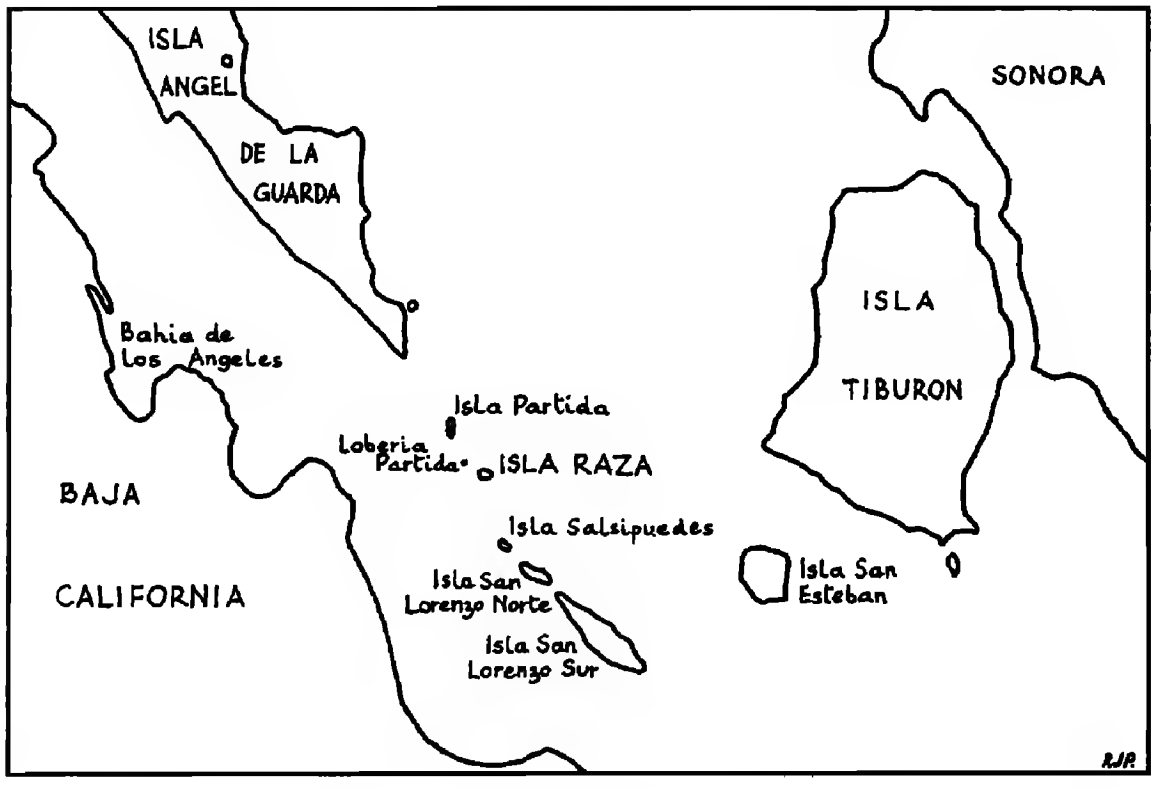

Figure 2. The location of Isla Raza and certain localities mentioned in the text. Drawn by Robin J. Prytherch from Lindsay (1966:347) and adapted originally from U. S. Hydrographic Office Chart No. 0620, 17 July 1963.

cholla cacti *(Opuntia* spp.*)*, and a salt bush *(Atriplex barclayana)*. Round the shores of the lagoon a species of *Suaeda* is abundant (Tobias 1968).

Invertebrate animals include a numerous but unidentified blackfly, at least one scorpion, and, in the splash zone, crustaceans including numerous rock lice *(Ligia occidentalis)* and Sally Lightfoot Crabs *(Grapsus grapsus)* (Barreto 1975, Brusca 1973). Besides birds, the only vertebrates appear to be Leaf-toed Geckos *(Phyllodactylus xanti)*, Side-blotched Lizards *(Uta stansburiana)* and introduced rats *(Rattus* sp.*)* (Tobias 1968, Barreto 1975).

In 1964 Isla Raza became the first official bird reserve in Mexico. Before that time a number of articles and reports were written to bring attention to the need for protection (e.g. Corzo 1964; Peterson 1961; Walker 1951, 1963). The problem had been commercial egging from the early 1950s to the early 1960s (Walker 1965), though as long before as 1922 Anthony (1925) had warned that the Heermann's Gull would soon become extinct from this cause.

The island had earlier been mined for guano. Streets (1877) reported that 10,000 tons had been removed by 1875 and that an estimated 60,000 tons remained. These high estimates receive some confirmation from a report that in 1874-1877 no less than 13,530 tons of Raza Island phosphatic guano was received at Hamburg, Germany (Hutchinson

Isla Raza, Gulf of California, looking NW. Immediately beyond lies Loberia Partida, and in the top right hand corner Isla Partida is visible.

Photo by Douglas Fisher

1950). Further mining was undertaken in 1912 (Barreto 1975). It was to facilitate its collection that rocks were piled up into the cairns that can still be seen (Lindsay 1962).

Visitors walking through the colonies is a current problem (Pacific Seabird Group 1974, Anderson et al. 1976). During our 3 weeks' stay one party of about 12 people from the United States entered Big Valley and caused the loss of maybe 30 to 40 terns' eggs to gulls (Boswall and Fisher 1976).

Eggs may still be taken for human consumption but on only a very minor scale. The need now is for bilingual notices warning visitors not to disturb the birds, and roped trails for tourists to follow. Ideally, the island should be wardened in the breeding season as it was, for example, in 1971, 1972 and 1973 (Anderson et al. 1976).

The most recent summaries of the biology of Heermann's Gull and the Elegant Tern appear to be those of Bent (1921). To these summaries the work of Anon., Tobias, Velazquez-Nogueron and Barreto (op. cit.) add a good deal of new information.

THE BREEDING BIRDS

Five species of birds were breeding on the island and another was almost certainly doing so. A seventh species may have finished nesting before our arrival. Two more possible nesters are mentioned.

MANX SHEARWATER *(Puffinus puffinus)*. Bancroft (1927) reports finding old shearwater burrows on Raza, but we found no evidence of this species.

BLACK STORM-PETREL *(Oceanodroma melania)*. Despite our residence on the island, including four night forays, we found no evidence of this bird's presence; neither sight, sound nor smell. The species is known to nest on neighbouring Partida (Banks 1963), a rather larger island a few km to the northwest.

OSPREY *(Pandion haliaetus)*. One pair had a nest on a cliff top at the northwest corner of the island. On 2 May their nest contained one dead chick about one-quarter grown, and one live chick about one-third grown. Food remains included a few remnants of fish and two partly consumed Eared Grebes. The taking of grebes by Ospreys in the Gulf of California appears not to have been published but is well known to D. W. Anderson (pers. comm.).

AMERICAN OYSTERCATCHER *(Haematopus palliatus)*. Several individuals and one anxious, no doubt nesting, pair were observed. One or two more pairs may well nest on the island.

WESTERN GULL *(Larus occidentalis livens)*. A nest found on 5 May contained two newly-hatched chicks and one pipping egg. A second pair of gulls, no doubt nesting nearby, mobbed the intruder. There could

have been a total of three or four pairs nesting on the island. Two individuals at the edge of the mixed tern colonies seemed intent on taking eggs. Western Gulls may well also take Heermann's Gulls' eggs.

HEERMANN'S GULL *(Larus heermanni)*. These gulls were easily the most conspicuous and numerous birds on the island, nesting almost everywhere. The density of nests was greatest in the flat-bottomed valleys and in a few other small rock-free areas. The birds nested less densely over the much more extensive rocky areas, and on a few small areas of *Suaeda* just above the high tide mark around the three lagoons. But even in areas that appeared to offer comparable habitat for nesting, the observed densities of nests could be sometimes dissimilar. For example, in the apparently preferred valley bottoms, there were small areas not used. Overall, however, our impression was that the birds were probably as evenly distributed as the terrain allowed. Raza houses "a colony" rather than a number of colonies.

To gain some idea of the density of nests (including only those containing eggs or chicks), counts were made in sample plots of 10 m x 10 m, pegged out with rope. On 11 and 12 May, 47 sample plots were selected along lines south and east from the eastern corner of the stone building (see Figure 1). Every alternate 10 m a plot was staked out and censused. The total number of plots sampled was 20 to the south and 27 to the east. The average number of nests was 13.4 nests per 100 m^2 (range 0-62). If these plots are representative of the total land area of the island (an estimated 47.72 ha), then the number of nests would be 65,000 (rounded off to the nearest five thousand).

Alternatively, by classifying the plots as either "flat" or "rocky," separate average densities can be calculated and used to determine the number of nests. Twenty-one plots were classified as "flat" and had an average of 20.5 nests per 100 m^2. The remaining 26 "rocky" plots had an average of 8.2 nests per 100 m^2. About 11.75 ha were "flat" and 35.97 ha "rocky." These figures give a total (rounded off to the nearest five thousand) of 55,000 nests for the whole island.

We think this latter figure is likely to be the more accurate one. Even so, it is possibly only accurate to plus or minus 20%. Thus we estimate that 43,000 to 64,000 pairs of Heermann's Gulls nested in 1975. In addition to these breeders there were no doubt adult-plumaged non-nesters on the island, but we have no idea of their numbers.

On 11 and 12 May we found that the 631 nests in the 47 plots contained eggs as follows: 1 egg, 311 nests (51.6%); 2 eggs, 297 nests (45.5%); 3 eggs, 23 nests (2.9%). Our calculation of an average clutch size of 1.52 eggs is probably more or less accurate. Daily counts of eggs in two sample plots in Mickey's Valley showed that some eggs were still being laid as late as 16 May, and also that some were still disappearing.

Adult Heermann's Gull *(Larus heermanni)*, Isla Raza, May 1975.

Photo by Jeffery Boswall

In the two 100 m^2 plots checked daily, the first chick hatched on 17 May from one of 131 eggs (0.7%) in 86 nests. By the next day, 3.4% had hatched, and by 20 May (our last day), 9.2%. At this rate, we expect that half the eggs would have hatched by 24 May, plus or minus 2 days. Thus the 1975 hatching season was similar to that in 1963 when, on 20 May, "hatching had just begun" (Banks 1963).

No first-year and only one second-year Heermann's Gulls were seen. Heermann's Gulls acquire adult plumage when they are nearly three years old (Bent 1921). They may, however, not breed until they are four or more years old and the presence of non-breeders in the same plumage as the nesters would not be easy to detect. Daily counts of all nests in the two sample plots from 4 to 20 May averaged 157 per day, the average number with eggs and/or chicks being 84 and the average number empty being 73. Some of the empty nests may have lost eggs; some more may have been awaiting eggs; and some (most?) may have been made by non-laying birds.

On 16 May we happened to be on the north coast of the island in the late afternoon. From about 1850 to 1915, thousands of Heermann's Gulls were seen leaving the island, flying at about 30-50 m above sea level, in a slow but purposeful flight to the ENE, towards Isla Tiburon. The same exodus took place the next evening (and no doubt on other evenings when we were busy elsewhere). Was this a feeding movement or were these birds adult-plumaged non-breeders going to roost elsewhere?

A noticeable feature of this species' behavior was the continual movement of birds from the nesting areas to the tidal lagoons and inshore waters, where they drank and bathed. Although the birds appeared to leave the nesting areas on individual initiative, they nevertheless gathered in tight flocks on the water. Careful observation showed that the birds were not feeding; in fact we only rarely saw the gulls eating anything at all, as the following scanty observations indicate.

When a 20 m tourist vessel anchored off the island for a few hours, a great flock of scavenging Heermann's Gulls was attracted. Also, a California Sea Lion *(Zalophus californianus)* shaking a sizeable fish from side to side out of the water attracted 10 to 20 Heermann's Gulls that hovered persistently over the mammal, dropping down for spare pieces. The only other significant feeding behavior observed was an adult that regurgitated a lizard for its chick on 18 May. It was clear that the birds had been feeding most often well away from the island.

The response of the Heermann's Gulls to the daily arrival of a Peregrine Falcon was a great lift-off. Most of the gulls settled on the lagoons or on inshore waters. The reaction of the terns was quite different: they suddenly became silent, and those in flight dropped to the nesting areas. We found three recently dead and partly consumed Heermann's Gulls which were no doubt Peregrine kills. A Common

Raven carrying off a Heermann's Gull egg to Loberia Partida was the only other evidence of predation on this species that we observed.

The earliest reference to these gulls on Raza is that of Streets (1877). Many subsequent writers mentioned their presence there and some estimated their numbers. In April 1925 Bancroft (1927) estimated 100,000 nests. In late April 1961 Peterson (1961) tentatively estimated 800,000 pairs (not birds). Two years later, on 11 April 1963, Bucheister (1963) estimated 400,000 gulls (not pairs).

For the later 1960s and early 1970s Barreto (1975) gives as the numbers of birds at Raza: 1966, 25,160; 1967, 125,400; 1968, 501,700; 1969, 583,000; 1970, 398,600; 1971, 410,400; and 1972, 349,000. He attributes to protection the population increase up to 1969. The subsequent decline he attributes primarily to birds moving elsewhere because the Raza population became too great, and secondarily to high mortality caused by exceptional rain in the 1972 breeding season. It must be borne in mind however that these figures are for the total number of birds present; Velazquez-Nogueron (1969) makes it clear that the 1969 figure of 583,000 birds is composed of 340,000 "reproducers" and 243,000 "juveniles," i.e., non-breeding subadults at least about a year old.

There are two other estimates for 1966, neither of which agrees with Barreto. E. C. F. Arrington (in Lindsay 1966) estimated there were 80,000 Heermann's Gulls on Isla Raza in late April, whereas Anon. (1967) gives "a total of 80,000 Heermann's Gulls and a floating population of 25,000." Nor does the 1968 figure of 1,274,800 (±68,000) nesting birds (Tobias 1968) tally with Barreto's figure for the same year of 501,700 birds! But then Anon. (1967) and Tobias (1968) give the surface of the island (excluding lagoons) as 830,000 m^2, whereas Barreto uses 620,000 m^2, a figure which in turn may be compared with our own of 477,720 m^2.

Anderson et al. (1976) give a figure of "around 50,000 pairs" as nesting on Raza (in 1974?). This agrees fairly well with our figure of 43,000 to 64,000 pairs in 1975.

Anderson (1973) reported that during the breeding season of 1973 several seabird species in the Gulf of California failed to breed. Heermann's Gulls failed to produce anything more than nest-scrapes. The event was believed to be quite normal and due to unusual water conditions.

ROYAL TERN *(Sterna maxima)* and ELEGANT TERN *(S. elegans)*. Royal and Elegant terns nested together in five different areas of Isla Raza (Figure 1). These mixed colonies varied in size, and in the proportions of the two species represented in each.

We did not enter the colonies to estimate the number of nests, since this would have resulted in a high level of predation on the eggs by Heermann's Gulls. Instead, the north-south and east-west dimensions

of each colony were measured along parallel lines we drew adjacent to the colonies, using a compass and surveying tape. The area actually covered by nesting birds within every oblong was then sketched by eye on graph paper; and the area in m^2 was later determined. These areas are probably accurate to within 20%. The proportion of each colony occupied by each species was estimated by visual inspection from a distance, and must also be regarded as approximate. No direct measurements were made of the nesting densities of these terns. De Naurois (in Buckley and Buckley 1972) gives six to nine as the average

Typical densities of nesting Elegant *(Sterna elegans)* and Royal *(S. maxima)* terns (above) and Heermann's Gulls *(Larus heermanni)* (below) on a "flat" area of Isla Raza.

Photos by Jeffery Boswall

Table 1. Estimated numbers of tern nests on Isla Raza, Baja California, in 1975.

COLONY	AREA	ROYAL TERNS		ELEGANT TERNS	
	m^2	% area occupied	Nests	% area occupied	Nests
A	10	50	34	50	43
B	353	30	720	70	2,125
C	124	10	84	90	960
D	182	50	619	50	783
E	672	60	2,742	40	2,312
TOTALS			4,199		6,223

number of nests of *S. m. albidorsalis* per m^2, and the Buckleys themselves found an average maximum of 6.8. For our calculations we have assumed 6.8 nests per m^2 for the Royal Tern.

The nesting density of Elegant Terns appears to be unknown. We have therefore assumed that the density of Elegant Terns' nests will be inversely proportional to the square of the length of the Royal Tern. In other words, if an 18 inch long Royal Tern occupies 0.147 m^2, a 16 inch long Elegant Tern will occupy 0.116 m^2, giving a density of 8.6 nests per m^2. The percentage areas occupied by each species in each colony and approximate numbers of nests of each, are given in Table 1. The positions of the terneries are shown in Figure 1.

The grand total is 10,422 tern nests. Guessing an accuracy of 25% and rounding off the figures, there were between 3,100 and 5,200 pairs of Royal Terns, and between 4,700 and 7,800 pairs of Elegant Terns.

Peterson (1961) estimated 200,000 pairs of Elegant Terns in seven or eight aggregations and "a small minority of Royals" in late April 1961.

Bucheister (1963) made an off-hand estimate of 50,000 to 100,000 terns of both species at one colony in one valley on 11 April 1963. On 7 June in the same year he found two small and one large colonies, and estimated a total of 15,000 pairs including 3,000 Royal Terns (birds, not pairs).

E. C. F. Arrington (in Lindsay 1966) estimated that in late April 1966, there were 40,000 Elegant Terns and 7,000 Royal Terns, presumably birds, not pairs. Also, Anon. (1967) estimated 45,000 Elegant Terns and 12,000 Royal Terns in 1966. These figures appear to include non-breeding as well as nesting birds.

On 28 April 1966 Robert T. Orr (pers. comm.) found two small, two medium-sized, and two large terneries. On the same date in 1968, in company with Sergio Hernandez Tobias, he estimated one Elegant Tern colony to contain 12,000 to 13,000 birds (not pairs), and saw smaller groups of about 1,000 birds elsewhere. He noted at the time that "the

Isla Raza, Gulf of California, looking WNW across Big Valley towards the house, the three lagoons, the Osprey's nest, Loberia Partida and, on the horizon, Baja California (see Figures 1 and 2).

Photo by Jeffery Boswall

"Rocky" (foreground) and "flat" (beyond) areas used by nesting Heerman's Gulls *(Larus heermanni)* on Isla Raza.

Photo by Jeffery Boswall

numbers were far less than when we were here two years ago." He estimated a total of over 100,000 terns (birds, not pairs) including a few Royals.

The 1969 figure of Barreto (1975) is 247,000 birds. For 1972, of both tern species together, Barreto gives 126,300 birds. He attributes the decline to the colonisation of other areas by Raza birds.

On 17 May 1971 Orr found two big concentrations of about 100,000 birds each.

Any year-by-year variations in the numbers of nesting terns may be due at least in part to the well-known tendency of some tern species to change breeding grounds from year to year.

CRAVERI'S MURRELET *(Endomychura craveri)*. Three seen together on the sea on 1 May were no doubt an adult-chick group. We found none nesting on Raza quite probably because we were too late. Raza has been known as a breeding place since 1865 (De Weese and Anderson 1976).

THE NON-BREEDING BIRDS

We also recorded the following ten species that breed near Isla Raza and six transients:

EARED GREBE *(Podiceps nigricollis)*. This grebe was around the island, fishing both among inshore rocks and up to c. 1,000 m offshore. From one position on the coast we counted 333 birds on 2 May and 262 on 7 May. The total number around the entire island could have been up to 500. These birds are likely to have been summering non-breeders (Grinnell 1928).

BROWN PELICAN *(Pelecanus occidentalis)*. Flocks of flying birds, up to 130 together, passed over or by the island daily. Occasionally one or two perched on the coastal rocks. Almost all individuals were in adult plumage.

BLUE-FOOTED BOOBY *(Sula nebouxii)*. A single bird in flight on 14 May and three on 16 May.

BROWN BOOBY *(Sula leucogaster)*. Occasionally one to four offshore.

BRANDT'S CORMORANT *(Phalacrocorax penicillatus)*. Every day up to 10 birds were seen in flight, and singles were watched fishing near the island. About 100 were observed on 15 May off Loberia Partida, a rock about 2 km WNW of Isla Raza.

MAGNIFICENT FRIGATEBIRD *(Fregata magnificens)*. One female on 20 May.

GREAT BLUE HERON *(Ardea herodias)*. Two on 2 May.

GREAT EGRET *(Casmerodius albus)*. Two were identified on 4 May.

PEREGRINE FALCON *(Falco peregrinus)*. One was seen daily.

WILLET *(Catoptrophorus semipalmatus)*. Two to four daily, 4-17 May.

WANDERING TATTLER *(Heteroscelus incanus)*. Two on 7 May, and one on 15 May.

SANDERLING *(Calidris alba)*. Up to 12 per day on four dates, 2-8 May.

WHIMBREL *(Numenius phaeopus)*. Up to six per day on four dates, 2-7 May.

MARBLED GODWIT *(Limosa fedoa)*. Up to three per day on seven dates, 2-13 May.

RING-BILLED GULL *(Larus delawarensis)*. An immature on 5 May.

COMMON RAVEN *(Corvus corax)*. One or two birds were seen on several dates.

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WESTERN BIRD PHOTOGRAPHERS

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Ken Gardiner of Menlo Park, California is a skilled photographer who has surely mastered his chosen subjects and his chosen medium. I have studied the results of many birds photographers (eastern, western and foreign) and have yet to find one whose mastery of birds in action represented in a black and white medium exceeds the work of Ken Gardiner.

Of all the areas of nature expression, the photography of birds in motion must be among the most difficult. It requires complete mastery of one's equipment to say nothing of the effort and expense of finally acquiring just the right equipment for the job. A thorough knowledge of one's subject is imperative to success and the quality of Gardiner's work attests to his subject knowledge. Additionally, the technical knowledge and skill required in successful darkroom techniques is virtually an art in itself and to achieve mastery in all of these areas and more represents years of effort, trial and error and expense.

Once Ken had perfected his technique and ultimately simplified it, his results were uniformly excellent. His use of a single type of black and white film (Kodak Tri-X), standard exposures (1/1000th second at f/11 on sunny days and 1/1000th second at f/8 on cloudy or foggy days), and virtually one type of camera-lens combination allows him to direct his full attention to capturing the subject in a pleasing and/or dramatic composition. He develops his own exposed film (in Edwal FG-7 developer) and crops and makes his own prints in the darkroom.

Ken Gardiner has been a staff member at SRI (formerly Stanford Research Institute) since 1954. He, his wife Lindy and their three daughters live in Menlo Park, California. His photographic accomplishments are legion and have not gone without recognition. He has many regional camera club awards in his collection as well as those from the Photographic Society of America. One of his most recent accomplishments included winning First through Fourth Prizes together with Best Photograph of the Year Award in the 1975 California Fish and Game Commission annual Photography Award Program. He virtually "cleared the boards" with his sweep of First, Second and Third prizes as well as gaining two Honorable Mentions in the black and white division of the Sixth Salon of Photographs features in *American Birds* (30-793-804, 1976). Rarely does a bird photographer of his skill come along and we who have attempted bird photography should be a little envious.

BIRD PHOTOGRAPHY

KENNETH W. GARDINER, P. O. Box 364, Menlo Park, California 94025

Photography has been a lifetime hobby and my interest has always been nature subjects. In recent years this interest has focused on birds, particularly birds in flight. In this fascinating endeavor I spend many hours stalking and photographing marsh and shore birds and birds of prey. My usual haunts are the South San Francisco Bay, particularly the area near the Palo Alto Baylands Nature Interpretive Center, and the coastal shore and beach areas of San Mateo, Santa Cruz and Monterey counties.

I do not use blinds but prefer to stalk birds in the open. All my photographs are made with the camera hand-held because the freedom and flexibility achieved by stalking birds in this manner, compared to using a tripod and a blind, afford many more opportunities for interesting in-flight and action shots. All of my pictures are taken with a 35 mm Topcon Super-D camera using motor drive, a 500 mm Auto Topcor lens and Kodak Tri-X black and white film. I feel the motor drive is an essential part of my equipment and that it significantly increases the chances of a good picture on any given encounter.

I prefer to use black and white film for several reasons. Its low cost permits taking the large number of negatives needed to get action shots that are both in focus and of an interesting pose. Though modern color prints are beautiful, they have a short life span if hung on the wall to enjoy, and the time and cost to personally print them is considerably more than for high quality black and white prints. The ease, flexibility and lower cost of black and white printing allows one to make numerous high quality prints of one's best shots for use in exhibitions and for sale at reasonable prices.

My favorite subjects, marsh and shore birds, have very little color and hence are well shown in a black and white medium. Both the lighting conditions and the backgrounds suitable to give good contrast from the bird differ for optimum results when using color or black and white. For many birds, color may be the easier material to work with but for marsh and shore birds and for flight shots, I feel that black and white is more flexible in that I can photograph under a greater variety of conditions.

When one tries to fill the frame with small and medium-sized birds, the resulting image-to-object ratios (magnifications) are in the range of 1/15 to 1/40. This results in a very limited depth of field. When one relates the rate of the bird's motion, human and camera response times, and the depth of field, one finds that a truly in-focus picture is largely a matter of chance. Skill, experience and good luck may help, but a large number of exposures is the only way to get results.

The exposure for all of the accompanying photographs was 1/1000 second at f/11 on Tri-X film.

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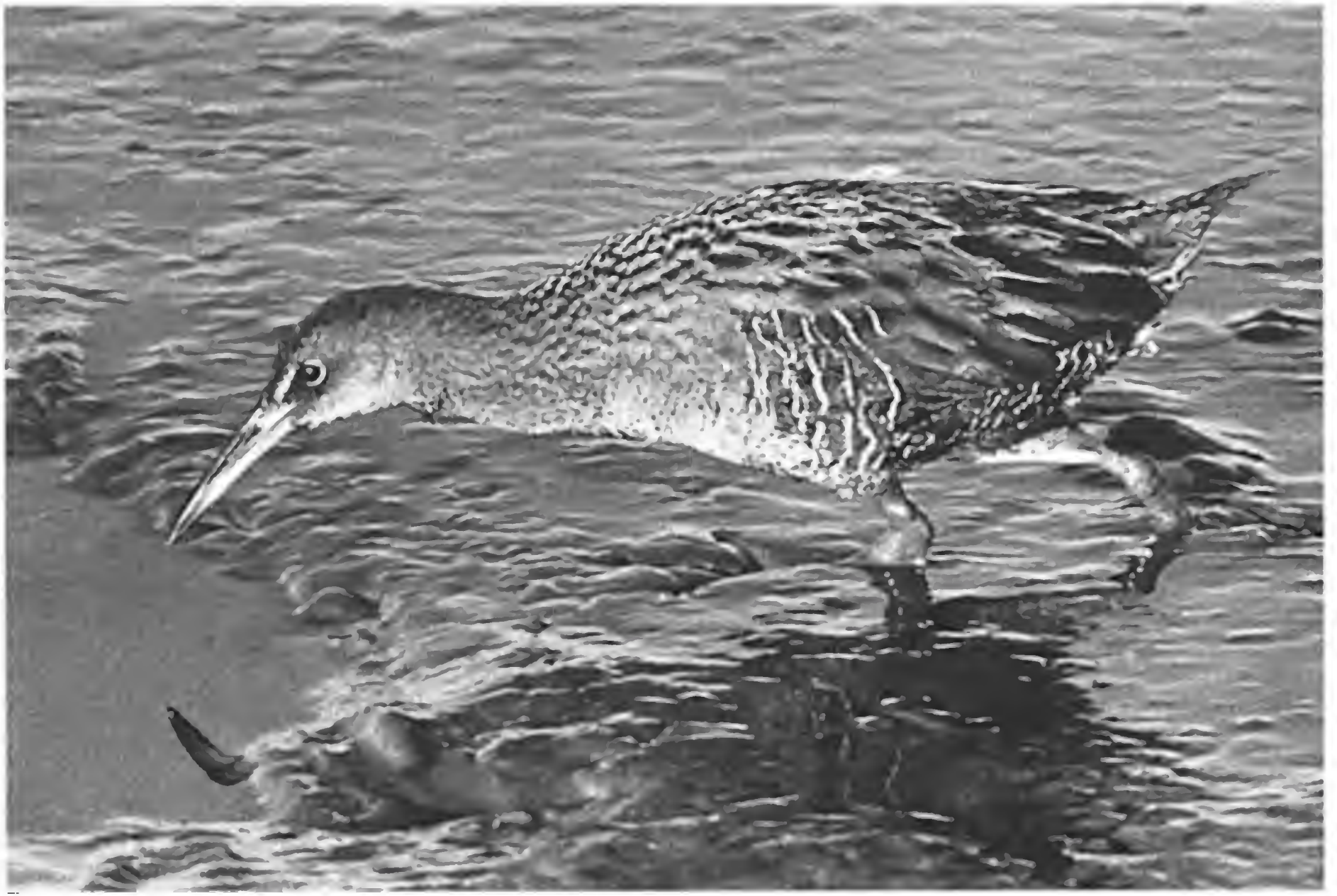
Short-eared Owl *(Asio flammeus)*, Palo Alto Baylands, Santa Clara Co., California, spring 1973



Clapper Rail (*Rallus longirostris*), Palo Alto Bavlands, Santa Clara Co , California, winter 1974

Forster's Tern *(Sterna forsteri)*, Palo Alto Baylands, Santa Clara Co., California, summer 1976.

Marsh Hawk (*Circus cyaneus*), Palo Alto Baylands, Santa Clara Co., California, May 1976

Flock of Western Sandpipers (*Calidris mauri*), Palo Alto Baylands, Santa Clara Co., California, fall 1973

Forster's Tern *(Sterna forsteri)*, Palo Alto Baylands, Santa Clara Co , California, spring 1977

Long-billed Dowitcher *(Limnodromus scolopaceus)*, Palo Alto Baylands, Santa Clara Co., California, fall 1973

Common Goldeneye *(Bucephala clangula)*, Palo Alto Baylands, Santa Clara Co , California, fall 1975

Brown Pelican *(Pelecanus occidentalis)*, Seacliff State Beach, Santa Cruz Co , California, fall 1973.

Marbled Godwit *(Limosa fedoa)*, Seacliff State Beach, Santa Cruz Co , California, fall 1973.

CHARACTERISTICS AND STATUS OF RUFFED GROUSE AND BLUE GROUSE IN COLORADO

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In recent years, interest in the presence or absence of Ruffed Grouse *(Bonasa umbellus)* in Colorado has increased. This interest was heightened with the reported observation of a single Ruffed Grouse near Hayden, Routt County, in 1971 by P. Lehner (Martin et al. 1974). Subsequently the Colorado Field Ornithologists Official Records Committee accepted the 1971 sighting and a 1947 observation of a female with three young near Hermosa Park, La Plata County (Reddall 1976). Ornithologists have not been alone in their interest in this species, as hunters and conservation agency personnel have periodically discussed prospects for the introduction of Ruffed Grouse into Colorado. Presently one land management agency is justifying in part its program of Quaking Aspen *(Populus tremuloides)* manipulation in Colorado on the basis that it will benefit Ruffed Grouse. In view of this interest we felt it was timely to clarify the known status of this species in Colorado. To fully understand the complexity of the situation it was also necessary to review the status of another forest dwelling Colorado tetraonid, the Blue Grouse *(Dendragapus obscurus)*, and compare important characteristics of the two species.

HISTORICAL REVIEW AND ANALYSIS OF RUFFED GROUSE OBSERVATIONS

Cooke (1898) and Sclater (1912) reported that one Ruffed Grouse was collected from a small flock and that several were seen 18 miles south of Denver in December 1894 and others were seen on 3 January 1898 near Sweetwater Lake, Garfield County. This specimen has since been lost. Cooke (1900) later reported seeing a family of old and young on 12 August 1899 on South Fork in Estes Park, Larimer County, at 2,740 m elevation. The next record was from 27 July 1947 of a female with three young in Hermosa Park, La Plata County (Reddall 1976). At about the same time (1947-1949) P. Gilbert observed a female with young in the Uncompahgre National Forest, Montrose County (Bailey and Niedrach 1965, P. Gilbert pers. comm.). P. Lehner reported observing, on 4 June 1971, a lone Ruffed Grouse feeding on the blossoms of serviceberry *(Amelanchier* spp.*)* southeast of Hayden, Routt County (Martin et al. 1974). More recently, unpublished observations of Ruffed Grouse have been reported from near Salida, Chaffee County, and Dolores, Montezuma County. Photographs of the reported Ruffed Grouse from

Columbia Peak (4,000 m) and Turner Peak (3,660 m), Chaffee County, have been carefully examined by us. Both sightings indicate female Blue Grouse with young. The written description of the 1947 observation of a female and three young in Hermosa Park, La Plata County, has also been carefully reviewed. The description, observed behavior and habitat suggest that this observation involved Blue Grouse. G. Gullion (pers. comm.) investigated the reported sightings near Dolores and found male Blue Grouse using logs as display sites.

The AOU Check-list (1957) includes northwestern Colorado in the range of the Ruffed Grouse, however references dealing specifically with grouse distribution in North America (Aldrich and Duvall 1955, Aldrich 1963) do not indicate that this species has occurred in Colorado in recorded history. No specimens are known from the state (Bailey and Niedrach 1965) and neither specimens nor photographs of this species from Colorado are known to us.

Despite reported observations and conjecture there is no tangible evidence of the presence of Ruffed Grouse in Colorado either presently or in recorded history. In our opinion all known observations supported by written descriptions and/or photographs clearly depict Blue Grouse, usually females with young. Extensive field work by the authors in Colorado since 1965 has provided no evidence of Ruffed Grouse anywhere in the state. Our examination of large samples (over 10,000) of wings from hunter harvested grouse collected at check stations, volunteer wing collection barrels, mail wing surveys and field bag checks from throughout Colorado in recent years has provided no evidence of Ruffed Grouse.

STATUS OF BLUE GROUSE IN COLORADO

The presence and distribution of Blue Grouse in Colorado has been well documented (Steinhoff 1956, Rogers 1968) with older records being summarized by Bailey and Niedrach (1965). Aldrich (1963) presented the distribution of the eight recognized subspecies of Blue Grouse of which only one *(D. o. obscurus)* occurs within Colorado. Because of the secretive nature of the species, Blue Grouse are not commonly observed by birders, despite being found in 43 of the 63 counties in the State. Recent investigations in northwestern Colorado by Hoffman (1978) indicate densities averaging 20 to 30 birds per square kilometer of suitable breeding habitat.

CHARACTERISTICS

Body features of Ruffed and Blue grouse are similar. Both have stout bodies with short, rounded wings, and a long fan-shaped tail with a distinct band. Females of both species display a head crest when excited and their coloration is somewhat similar. The two species may occupy

similar or adjacent habitats and have some common behavior patterns. Potentially adding to this confusion is yet another species, the Sharp-tailed Grouse *(Pedioecetes phasianellus)* that may also be found in close association with Blue and Ruffed grouse. Chances of misidentification are great and proper identification requires knowledge of the habits and distinguishing features of the species.

Body length and weight of Blue Grouse range from 454 to 584 mm, and 681 to 1362 gm, respectively (Rogers 1968). Comparatively, the Ruffed Grouse is smaller, with physical measurements of 381 to 482 mm (body length) and 454-681 gm (weight) (Edminster 1947). Whereas males of both species are typically larger and heavier than females, this characteristic is most pronounced in Blue Grouse.

Dorsal plumage coloration of the male Blue Grouse is a scaly, grayish-brown on the upper tail coverts, rump and lower back becoming more bluish-gray on the upper back and nape. Buffy or gray vermiculations occur on the upper wing and tail coverts and along the flanks, where a broken pattern of white, black, and bluish-gray markings predominate. The tail is black with a distinct, gray, terminal band. Ventrally, the breast is a mixture of bluish-black and white changing to slate gray and white on the abdomen. Underwing and tail coverts are mostly gray and white. Bases of the cervical feathers located laterally on the neck are white on males and grayish-brown on females. Dorsally, females have a mottled brown background broken by a pattern of white, black, and grayish-brown markings. The breast is brownish-gray grading into a mixture of slate gray and white posteriorly. The tail varies from brownish-black to black with a narrow, light gray, often indistinct and heavily speckled terminal band. Buffy barring frequently occurs on the central two tail feathers.

Ruffed Grouse occur in two color phases, red and gray. Sexes are similar, with males being slightly larger. In the Rocky Mountains gray phase Ruffed Grouse predominate. Dorsal color of this phase is grayish-brown with a broken background pattern of black and white markings. The ventral coloration is grayish-white grading into a mixture of brown or blackish-brown bars on the flanks. Field identification is best made by the distinct, black, subterminal tail band bordered by narrow bands of gray, and the black ruffs on each side of the neck. Males have a more prominent ruff than females, but this distinction is not easily seen in the field. The subterminal tail band of females is broken in the center, whereas males have a continuous band.

HABITATS

Species as widely distributed as Ruffed and Blue grouse occupy diverse habitats. Blue Grouse are commonly associated with coniferous

forests as most winter within this habitat type. Breeding Blue Grouse prefer semi-open to open stands of conifers or aspen with an understory of shrubs or young trees. These open woodlands adjacent to coniferous forests are preferred during spring, summer and fall.

Ruffed Grouse prefer the aspen-shrub type in the intermountain area. The best areas are composed of uneven age stands of aspen supplemented by scattered or adjacent conifer stands, small openings and a mixture of shrubs varying in density and height. In Wyoming and Utah such areas usually occur along stream courses or in scattered pockets of varying size separated by expanses of unsuitable habitat.

Throughout much of the western range of Ruffed Grouse, the species overlaps with Blue Grouse. Where this situation occurs, Ruffed Grouse utilize more dense, mesic, aspen-shrub sites, whereas Blue Grouse are found in more open, xeric, conifer-shrub or mixed conifer-aspen-shrub types at higher elevations. All these types occur in Colorado and all are heavily utilized by Blue Grouse.

HABITS

Both Blue and Ruffed grouse have a promiscuous mating behavior. Males occupy territories and perform elaborate displays to advertise their presence and attract females for mating. Displays of Blue Grouse consist of flutter flights, strutting and hooting (Rogers 1968). Ruffed Grouse also strut during courtship activities, but drumming is the primary display (Edminster 1947). Males of both species exhibit a high fidelity to their territories and certain sites within the territory are preferred for display.

Like other tetraonids, Blue and Ruffed grouse are ground nesters. With initiation of incubation and subsequent hatching of chicks, hens lose interest in courtship and males soon abandon their territories. Whereas the male Ruffed Grouse may center his summer activities around the territory, male Blue Grouse move uphill to summer near mesic areas along ridgetops. Female Blue Grouse with broods seek out moist areas characterized by a mixture of shrub thickets, open meadows, and stands of trees where vegetation is lush and insects and fruits are abundant. Ruffed Grouse broods utilize areas with similar site characteristics but where brushy cover predominates.

Brood breakup and dispersal occur in late summer and early fall and individuals of either species may be found almost anywhere. With snowfall in late fall, individuals of both species change from primarily ground dwellers to arboreal habits and seek denser cover. Blue Grouse switch to an almost exclusive diet of conifer needles and buds and are closely associated with coniferous forest types until early spring. Ruffed Grouse also prefer conifers for winter cover but conifer needles are not

important winter food for this species. Instead it feeds on the buds of adjacent trees and shrubs such as aspen, Western Choke Cherry *(Prunus virginiana)*, serviceberry and willow *(Salix* spp.*)*.

CONCLUSIONS

Many characteristics of Ruffed and Blue grouse are similar. Whereas Blue Grouse are larger, appear grayer in coloration and have different habitat requirements than Ruffed Grouse, enough overlap occurs to make species identification difficult. This is especially true of females with young in shrub or dense habitats.

We conclude that Ruffed Grouse do not occur anywhere in Colorado and that all reported observations have been of Blue Grouse and/or Sharp-tailed Grouse. In light of the limited flight capability of Ruffed Grouse (Palmer 1962, Moran and Palmer 1963) and the large expanses of unsuitable habitat between Colorado and established populations in extreme southwestern Wyoming and adjacent northern Utah, it is highly unlikely that even dispersing individuals would survive to reach Colorado as stragglers. Obviously the ecological barriers and distances between occupied habitats northwest of Colorado and habitats that superficially appear suitable for Ruffed Grouse within the state have been insurmountable. It is unlikely that ecological conditions will change to allow natural colonization of this species within the state even providing that conditions in Colorado are suitable.

In view of the lack of tangible evidence (specimens or photographs) and ambiguity of reported or published observations of Ruffed Grouse in Colorado, the current Colorado Field Ornithologists Official Records Committee recently decided to remove the Ruffed Grouse from the list of birds of Colorado (Robert Andrews pers. comm.). Most recently, Colorado Field Ornithologists (1978) excluded the Ruffed Grouse as an inhabitant of Colorado and included it among several species recorded in the state only on the basis of sight records, but not within the past 15 years.

ACKNOWLEDGMENTS

Several colleagues, especially Jerry Cebula and Gordon Gullion, stimulated our interest in Ruffed Grouse. We acknowledge their contribution in motivating us to prepare this review. Howard Funk and Ronald Ryder critically reviewed a draft of the manuscript and were quite helpful. The Official Records Committee provided access to their files on Ruffed Grouse for which we are grateful. We accept all responsibility for rejection of reported observations of Ruffed Grouse in Colorado. This is a contribution from Colorado Federal Aid in Wildlife Restoration Project W-37-R.

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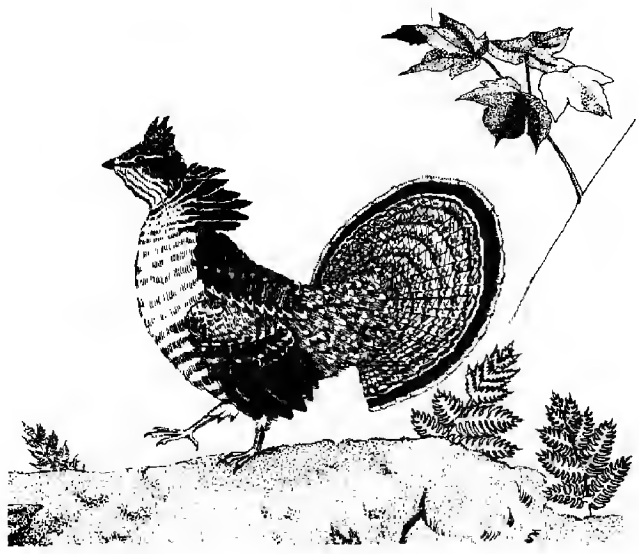

Sketch by Narca A. Moore

NOTES

FIRST NORTH AMERICAN SPECIMEN OF THE SPOTBILL DUCK

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RICHARD A. MACINTOSH, P.O. Box 2423, Kodiak, Alaska 99615

On 30 October 1977 Trapp, MacIntosh, and Malcolm E. Isleib flushed a large, dark-bodied, pale-headed, dabbling duck from the estuary of Kalsin Bay, Kodiak Island, Alaska (57°34′ N, 152°27′ W). MacIntosh tentatively identified the bird as a Spotbill Duck *(Anas poecilorhyncha)* on 31 October and on 1 November it was collected, providing the first specimen and second record of this Asiatic duck for North America. The adult female weighed 1050 g, had heavy fat, and the ovary contained varied-sized follicles (largest 1.5 mm diameter). The specimen (UAM 3631), determined to be *A. p. zonorhyncha* on the basis of the faint moustachial stripe (Scott 1968, Daniel D. Gibson pers. comm.), has been deposited in the University of Alaska Museum. Previously, a Spotbill Duck identified as *zonorhyncha* remained at Adak Island, Aleutian Islands, Alaska for nearly a year, 1970-71 (Byrd et al. 1974; photograph published, Gibson 1971).

The bird was about the size of a Black Duck *(A. rubripes)*, with dark body and pale head. The crown and nape were very dark, appearing almost black; a dark ocular stripe was also present. Contrasting with the dark crown and ocular stripe, a white supercilium was visible at a great distance. The sides of the head, chin, neck and upper breast were pale, merging into the dark brown lower breast and abdomen; the back and sides were also very dark. In flight the speculum appeared all dark and a large white patch was visible on the trailing edge of the wing near the body. In the folded wing this conspicuous white patch was located posterior to the speculum (see illustration in King and Dickinson 1975). The bill was black with a yellow tip, and the legs and feet were bright orange-red. Color illustrations are found in Kobayashi (1963), Scott (1968) and Yamashina (1961).

The Spotbill Duck ranges throughout much of Southeast Asia from Mongolia and the Soviet Maritime Territory south to India and the Indochina countries (Vaurie 1965). *A. p. zonorhyncha* breeds in eastern Siberia, Manchuria, Mongolia, northern China, Korea, southern Sakhalin, the Kurile Islands and Japan (Dement'ev and Gladkov 1952). The northernmost populations are migratory.

An examination of weather records for the week preceding the sighting suggests the means by which the bird arrived at Kodiak. Tropical storm *Harriet* developed off Japan and on 24 October was off the Kamchatka Peninsula coast. The storm center moved eastward across the Bering Sea at a speed of 37-46 km/hr, producing 130-148 km/hr westerly winds in the Aleutians from 24-26 October, with several localities reporting sustained gusts exceeding 185 km/hr. By the morning of 26 October the storm center was 322 km south of Cold Bay, at the tip of the Alaska Peninsula. The system then continued in a southeasterly direction, passing south of Kodiak Island. It moved across the Gulf of Alaska to a point about 725 km west-southwest of Annette, southeast Alaska, where it began filling and weakening rapidly. A bird caught in this intense storm system could easily have been transported to Kodiak.

NOTES

We thank John B. Murray for invaluable assistance in the field, Daniel D. Gibson for commenting on an early draft of the manuscript, and Christian P. Dau for preparation of the study skin.

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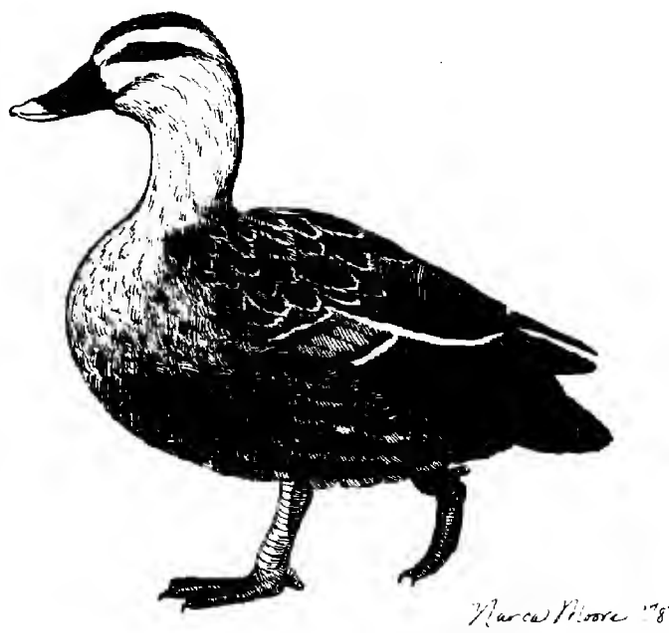

Sketch by Narca A. Moore

A MAGNIFICENT FRIGATEBIRD IN SAN BERNARDINO COUNTY, CALIFORNIA

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Perusal of the literature indicates a lack of records of the Magnificent Frigatebird *(Fregata magnificens)* in San Bernardino County, California. Phillips, Marshall and Monson (1964) noted the occurrence of frigatebirds *(Fregata* sp.*)* at Lake Havasu, Mohave County, Arizona. Although Lake Havasu borders San Bernardino County, Cardiff (1963) did not include any frigatebird in his review of the avifauna of the county. More recently, McCaskie (1976a) reported a Magnificent Frigatebird over Grand Terrace, located approximately on the Riverside-San Bernardino County line. Additional frigatebird sightings in southern California and in the vicinity of the Colorado River in Arizona and Nevada are discussed by McCaskie (1970), Lawson (1973, 1977) and Speich and Witzeman (1975).

At 1445 on 23 March 1977 the authors and R. G. Hulquist observed an immature Magnificent Frigatebird for several minutes at Chino, San Bernardino County, which is located approximately 33 km from the coast. The bird was flying in a westward direction with a group of perhaps a dozen unidentified gulls. It did not actively flap its wings as it approached, but instead glided in the manner so typical of frigatebirds. The white head and chest, characteristic of immature birds, was plainly visible with the unaided eye; however, the bird was examined with 7x35 binoculars for 90 seconds before it disappeared. All of the observers are familiar with this species, having seen it on numerous occasions in Baja California and Sonora, Mexico.

This observation confirms the occurrence of the Magnificent Frigatebird in San Bernardino County. In addition, it provides another inland California record of this species away from the Salton Sea. As of 1976 such records were "few indeed" (McCaskie 1976a). Furthermore, this record is only the fourth reported for southern California between 1 November and 13 June (McCaskie 1976b).

We are indebted to John R. Gustafson for reading the manuscript and making valuable suggestions. We thank Kathleen M. Bleich for assistance with the literature review. Alan M. Craig and Guy McCaskie offered valuable editorial assistance during the review process, and their efforts are gratefully acknowledged.

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MEXICAN NESTING RECORDS FOR THE AMERICAN BITTERN

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The southern limit of the nesting range of the American Bittern *(Botaurus lentiginosus)* is generally considered to be along the southern tier of states of the United States (American Ornithologists' Union, Check-list of North American Birds, 5th ed., 1957; Palmer, Handbook of North American Birds, Vol. 1, Yale Univ. Press, 1962). Although the species is known to winter in suitable localities throughout Mexico, it has not been reported nesting in that country (Friedmann, Griscom and Moore, Pacific Coast Avifauna no. 29, 1950).

The collection of the National Museum of Natural History (USNM) contains three specimens of American Bittern taken by E. A. Goldman at Lerma, Mexico, on 4 July 1904. One bird is an adult female (USNM 193851); the other two are nestlings, both labeled as males (USNM 193852, 193853). Although the young birds are mostly downy, body feathers on the neck and scapular region permit specific indentification. They appear to be 10 days to 2 weeks old, as judged by the description of young given by Bent (Life Histories of North American Marsh Birds, U. S. Natl. Mus. Bull. 135, 1926). Goldman's journal for this period indicates that the species was "rather common and breeding." These specimens establish that the American Bittern bred in central Mexico 70 years ago.

On 3 July 1957 and 31 May 1968 R. W. D. heard the characteristic "pumping" of this species at Laguna del Carmen, Puebla, and on 12 July 1957 saw one individual there. These records probably indicate an additional breeding locality. R. W. D. also saw and collected the species at Laguna del Carmen in September 1961, saw it at Lago San Felipe, Puebla, in April 1962, and at Lago Coatetelco, Morelos, on 13 September 1961, and saw and collected it at Laguna Patzcuaro, Michoacán, in late August and September 1957. The April and August-September records suggest areas in which the possibility of breeding should be investigated.

Statements of the nesting range of *Botaurus lentiginosus* should be amended to account for at least occasional breeding in suitable portions of Mexico as far south as the states of Mexico and Puebla.

Accepted 7 June 1978

A WHITE-TAILED KITE BREEDING RECORD FOR OREGON

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A pair of nesting White-tailed Kites *(Elanus leucurus)* was located on the William L. Finley National Wildlife Refuge 20 km south of Corvallis, Benton County, in the Willamette Valley in early March 1977. This is apparently the first confirmed nesting record for the species in Oregon (about 275 km north from California border), although there is considerable evidence that nesting occurred the previous year in the same vicinity. During an aerial waterfowl survey on 1 April 1977, an incubating bird was observed on the nest. Young were being fed on 11 April; however, when the nest was revisited on 9 May, three dead young (approximately 1 week old) and an addled egg remained. Heavy rains in mid-April may have caused the nesting attempt to fail.

The nest was located in the top of a hawthorn *(Crataegus* sp.) about 5 m from the ground. It was effectively concealed from below, but easily observed from above. The nest was lined with hair of the Gray-tailed Vole *(Microtus canicaudus)*, as described by Hawbecker (1940). Voles, which are abundant in an old field adjacent to the nesting site, have been reported as the major prey of White-tailed

White-tailed Kite nest was located in this old field on the William L. Finley National Wildlife Refuge, near Corvallis, Oregon.

Photo by John T. Annear

Kites (e.g., Hawbecker 1940, 1942; Bond 1940; Stoner 1947; Dixon et al. 1957; Stendell and Myers 1973). In fact, Hawbecker (1942) concluded that kites are seen only in a type of habitat that supports *Microtus*.

Single kites were observed on the Finley Refuge 13 February 1967, 12 April 1973, and 4-5 June, 13 July and 20 July 1974. One was observed almost daily from 18 October 1975 until early April 1976, when two birds were sighted together. These birds were later seen in aerial courtship behavior and carrying nesting materials, but a nest was never located. Two adults and two young kites were seen from mid-July 1976 into autumn. On 17 August Annear observed the adults carrying nesting material and placing it in a hawthorn. Copulation took place but subsequent observations revealed no further activity at the site. Suspicions that there were more than four birds on the refuge were confirmed on 16 October when five kites were sighted, and again on the Audubon Christmas Bird Count on 22 December when seven kites were found. On 14 July 1977 four kites, apparently paired, were observed on the refuge.

Early published records for White-tailed Kites in Oregon include a sight record by B. H. Lampman east of Portland along the Columbia River, and another sight record on 23 February 1933 about 32 km west of Portland in the Columbia River bottoms (Jewett 1933). In addition, Laval (1947) reported two immatures near Old Broken Top Mountain about 40 km west of Bend on 4 August 1947. During the last decade several sightings of White-tailed Kites have been documented in Oregon (see *Audubon Field Notes* and *American Birds)* which suggests a general range expansion northward.

Not many years ago the White-tailed Kite was considered rare in the United States. May (1935:7) wrote: "The White-tailed Kite . . . is today in very real danger of complete extirpation in the United States, where it is now very rare and local." He reported that the entire breeding range of the United States population, which once included much of western California, southern Oklahoma, eastern Texas, southern South Carolina, eastern Georgia, and Florida, was reduced to portions of the Sacramento Valley and San Diego region of California, and the coast of extreme south Texas. However, White-tailed Kites began increasing in San Diego County in the late 1930s (Dixon et al. 1957). And, by the 1960s, a great population increase and range expansion had become apparent in California. White-tailed Kites have recently extended their range (including the breeding range) through the Central American countries (Eisenmann 1971). Warner and Rudd (1975) believed that these increases (at least in California) were probably due to the kites' tolerance of habitat disruption by expanding agriculture, and to the increased abundance of prey species *(Microtus californicus)* that thrive under agricultural conditions (Krebs 1966). Eisenmann (1971) reported that the White-tailed Kite has been noted, at least occasionally, in most California counties and suggested that their range is still expanding. Nesting occurred in 1969 even in the extreme northwestern Del Norte County (Hehnke 1970). So, it was apparently only a matter of time until the breeding range extended further north into Oregon.

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Accepted 26 March 1978

ELEGANT QUAIL IN BARRANCA DEL COBRE, CHIHUAHUA

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At 1100 on 23 May 1977 Mary E. Bush and I observed two Elegant Quail *(Lophortyx douglasii)* near the village of Urique (27° 12'N, 107° 55'W) in southwestern Chihuahua, Mexico, 240 km SW of Chihuahua City. Urique lies along the edge of the Urique River on the floor of Barranca del Cobre in the Sierra Madre Occidental of northwest Mexico. Although the elevation at Urique is only 665 m (2200 ft.), many of the surrounding igneous massifs rise 2100-2300 m (6900-7600 ft.) above sea level. Chihuahuan Desert plants such as Honey Mesquite *(Prosopis juliflora)*, Hairbrush Cactus *(Pachycereus pecten-aboriginum)*, prickly-pear cactus *(Opuntia* spp.*)* and *Yucca* sp. were conspicuous on the open arid slopes above the river where they grew alongside scrubby tropical deciduous forest species such as Boat-thorn Acacia *(Acacia cymbispina)*, Silk-cotton Tree *(Bombax palmeri)*, *Ipomoea* sp., etc. Cottonwood *(Populus* sp.*)* and willow *(Salix* sp.*)* dominated the riparian woodlands.

The two quail were first noticed loitering on the ground beneath dense, tangled shrubbery near a dirt road. We observed them through 9x binoculars for perhaps a minute from a distance of about 15 m under excellent light conditions. They were about the size of Scaled Quail *(Callipepla squamata)* and generally nondescript bluish-gray in color. Instead of a topknot, however, an erect, tan-gold crest protruded vertically from the crown. Many small dark spots on the crown, nape and throat were conspicuous. After they disappeared beneath the shrubbery, we heard them call several times: the call was very similar to a Bobwhite's *(Colinus virginianus)* covey call. Two days later, we saw and heard Elegant Quail several times at close range near Los Mochis, Sinaloa, where the species is fairly common.

According to Peterson and Chalif (A field guide to Mexican birds, 1973:45), *L. douglasii* occurs in "W. Mexico from cen. Sonora and W. Chihuahua south on Pacific slope through Sinaloa, Nayarit, Jalisco to Colima." Leopold (Wildlife of Mexico, 1972:240) gives the distribution as the "Pacific slope from central Sonora south to Colima." Based on the range reported by Friedmann et al. (Distributional check-list of the birds of Mexico, Pt. 1, Pac. Coast Avif. 29:74-75, 1950), it inhabits western Mexico from Sonora and Chihuahua south to Nayarit and Jalisco, but they do not indicate which part of Chihuahua. How long the species has been in the Copper Canyon is unknown. Until February 1976 there was no road to the bottom of the canyon. During our visit to Urique of 24 May 1976 we failed to see or hear this species. How it found its way so far inland is likewise unknown. This quail is reported to thrive in cutover forest (Leopold op. cit.:242). Perhaps it has followed tongues of the tropical deciduous forest up the river valleys from the Pacific coastal plain as they have been settled and cleared by man.

The possibility exists, of course, that the birds we saw escaped or were released from captivity. This seems unlikely, however, because 1) we could discern no obvious signs of feather wear indicative of caged birds (such as frayed rectrices or feathers worn from the base of the bill), and 2) the quail were quite wary and retreated at our approach.

Accepted 26 October 1977

A PROBABLE NUTTING'S FLYCATCHER IN SOUTHWESTERN NEW MEXICO

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Early in the afternoon of 18 December 1976 Marian Zimmerman and I closely observed a *Myiarchus* flycatcher, which we believe was a Nutting's Flycatcher *(M. nuttingi)*, in the Gila River Valley, approximately 10 km downstream from Riverside, Grant County, New Mexico. Normally, no species of *Myiarchus* occurs in this area during late autumn or winter. The bird was small, with a conspicuously rufous tail and primaries, the latter showing as a prominent reddish streak on the closed wing. The bill was small for the genus and not especially broad. The chin and throat were so pale as to appear white; the breast was pale gray, contrasting with a rather bright yellow belly, the intensity of the color doubtless due in part to the bird's very fresh plumage. Its inner remiges were widely edged with whitish, showing no signs of wear. Similarly, the rectrices were broadly white- or whitish-tipped.

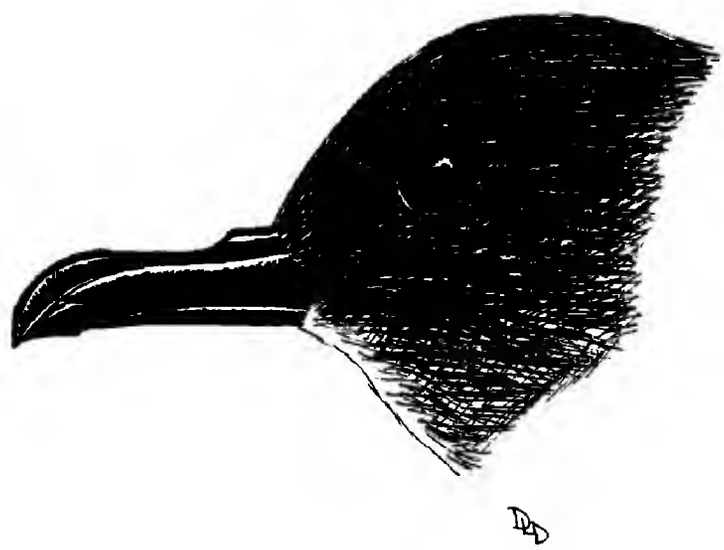
The bird perched low in leafless mesquites and an adjacent sycamore tree. It engaged in flycatching among the bare branches and once flew to the ground to capture an insect. During the 10 minutes or so of our observation, it rarely was more than 2 or 3 m above ground. Once, after actively pursuing an insect, the bird perched with its dorsal suface toward me and with its rectrices somewhat disarranged. What appeared to be the second feather from the left rested largely atop the more central ones, revealing a wholly dark outer web but no dark terminal bar on the inner web; there the bright rufous color appeared to merge directly with the whitish tip. I studied this for perhaps 20 seconds, in full sunlight at a distance of 7 m, with a 10X Zeiss binocular. The distribution of dusky and rufous was evident owing to the glint of sunlight along the rectrix shaft; the feather was in clear, sharp focus. After the flycatcher again took wing, its tail feathers became normally arranged and the pattern described was no longer visible. Marian was viewing from the side and thus could not see the rectrix pattern as could I, viewing from the back.

We spent the entire 10 minutes within 5 to 9 m of the bird, which was highly tolerant of our activity and remained in full sunlight. Knowing of the single January record of *M. nuttingi* from Arizona, we studied it to the best of our ability. Collecting was impossible at the site. The bird uttered a note which we have never heard from any other *Myiarchus* including Mexican *nuttingi* (although neither of us is especially familiar with that species' vocalizations). The call, given three times at intervals of 2-3 minutes, was a rather thin, almost whistled, rising single note – not emphatic (like the calls of the Great Crested Flycatcher, *M. crinitus*, or Wied's Crested Flycatcher, *M. tyrannulus*) – yet not plaintive in quality (as is that of the Olivaceous Flycatcher, *M. tuberculifer*). It was a little longer than the ordinary "wheep" note of *M. crinitus* and was *vaguely* reminiscent of that. It was, however, much softer, more nearly whistled and with no hint of a terminal consonant sound; I transcribed it as *reeeeeee* or *ereeeeeee*. This was not a truly clear whistle throughout, but possessed a slightly rough quality at the beginning of the call. It was delivered with the bill only partly opened.

Both observers are very familiar with the various North American *Myiarchus* species. We spent years in the East with Great Crested Flycatchers and we have had considerable field experience, spanning three decades, with Wied's Crested Flycatchers in the American Southwest and in Mexico. We see that species at intervals each year in Arizona and New Mexico. The Ash-throated Flycatcher *(M. cinerascens)* we know intimately. It has nested about our home in Silver City where it is a common summer resident. I doubt that there is a vocalization of the species – at least as uttered between April and September – which we do not know. Both of us are familiar with this species throughout its range in Mexico as well, along with the Yucatan Flycatcher

(M. yucatanensis). Nevertheless, owing to the complexities of *Myiarchus* identifications, it would be presumptuous to state definitely that the December individual was a Nutting's Flycatcher although we strongly suspect this to be the case. Allan R. Phillips and Laurence C. Binford kindly read my notes on the Gila Valley bird; they too suspect it to have been *M. nuttingi*. Observers in the Southwest should pay special attention to any *Myiarchus* flycatchers of unseasonal occurrence. Tape recordings of such birds' vocalizations would be especially useful.

Accepted 26 August 1978



Short-tailed Shearwater *(Puffinus tenuirostris)*

Sketch by Donna Dittman

WANTED: PHOTOGRAPHS

In recent years the photograph has become an important form of documentation for records of rare birds, and a growing number of field ornithologists carry a camera in the field for that purpose. In future issues of *Western Birds,* we plan to print more photographs of rare and unusual birds in the West, to provide a place to publish this valuable documentation. All photos need not be crystal clear, perfectly composed or of first state records. We ask, however, that the bird be identifiable from the photo. Each photo should be accompanied by name of species, date and place photo was taken, significance of sighting, name of photographer and any other pertinent information. Please submit black and white prints. If this is not possible, color slides and prints will be accepted, copied and returned. Submit photos to Stephen A. Laymon, 3290 Ackley Rd., Lakeport, CA 95453.

The accompanying photos of Emperor Geese are examples. Normally a single photo will suffice; in this instance, photos of two individuals in different plumages were available.—*SAL*

Emperor Goose *(Philacte canagica)* in first autumn plumage, Sacramento River near mouth of Big Chico Creek, Butte Co., California, 15 October 1972. The Emperor Goose is casual in winter in California, both along the coast and in the Sacramento and San Joaquin valleys.

Photo by Syd Thomas

Emperor Goose *(Philacte canagica)* in adult plumage, Moss Landing, Monterey Co., California, 18 March 1978. This individual had been seen in the area since late December 1977.

Photo by Stephen A. Laymon

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Authors are provided 50 free reprints of each paper. Additional reprints can be ordered at author's expense from the Editor when proof is returned or earlier.

Color photographs of rare and unusual birds, accompanied by an article or with caption including species, date, locality and other pertinent information, should be submitted to Stephen A. Laymon, 5290 Ackley Road, Lakeport, CA 95453.